

Museum. Mr. George Else of the Department of Entomology of the latter institution also very kindly compared specimens for me.

### References

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## THE REAPPEARANCE OF *ANAPHAEIS JAVA PERISTHENE* (BOISDUVAL) (LEPIDOPTERA: PIERIDAE) ON NORFOLK ISLAND

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 The Australian Museum and Norfolk Island

The appearance and disappearance of species on islands is an interesting phenomenon. This note records the reappearance of the pierid butterfly *Anaphaeis java peristhene* (Boisduval) on Norfolk Island after an apparent absence of over seventy years.

Olliff (1888) recorded *Pieris java* Sparr. from Norfolk Island. Hawkins (1943) listed 3 ♀ and 1 ♂ of *Anaphaeis java peristhene* in the British Museum from the island and considered that the Olliff specimens "could hardly be typical *java*". Olliff's specimens have not been traced and their identification cannot be confirmed. In reply to a request for label data from the specimens examined by Hawkins, Mr. R. I. Vane-Wright (*in lit.*) kindly provided the following information:

"Our old main collection of *java peristhene* does consist of 3 ♂ ♂ and 1 ♀ . . ." " . . . Hawkins more probably made a mistake in transcribing rather than in actually recognising the sexes. I now note that we have one further old specimen from Norfolk Island, a male in the Rothschild Collection *ex* Distant Collection—it bears no further data. It is almost certainly late 19th century in origin, . . . I doubt if any of our specimens were caught during the present century".

Hawkins' work was prompted in part by the acquisition of a sizeable collection of insects of many orders made by Mrs. I. McComish on Norfolk Island during 1939. Her material did not include specimens of *A. java peristhene* although it did include the four common butterfly species known from the island at that time. These are *Papilio ilioneus ilioneus* Don., *Cepora perimale perimale* (Don.), *Danaus plexippus* (L.) and *Zizina otis labradus* (Godart). The other eight species now known are less common there (two having been recorded only once) or they have been recorded for the first time since Hawkins' paper was published. These are *Graphium macleayanum* (Leach), *Anaphaeis java peristhene* (Boisd.), *Hypolimnas bolina* (L.), *Vanessa kershawi* (McCoy), *Vanessa itea* (Fabr.), *Precis villida calybe* (Godart), *Lampides boeticus* (L.) and *Melanitis leda bankia* (Fabr.). There seems to be no mention in the literature of *A. java* from Norfolk Island between Olliff (1888) and Hawkins (1943) and the latter refers only to 19th century specimens. Had the species been present during 1939 Mrs McComish would certainly have collected it. One of us (O.R.E.) has always been resident on the island and the other (C.N.S.) has made visits to the island each year from 1967-1971 (inclusive) covering various seasons of the year, but

neither of us had encountered the species there up until that time. Also, there are several other residents on the island interested in its natural history and none of them were familiar with the species.

On 25th April, 1972, a specimen of *Anaphaeis java peristhene* was collected at Kingston (by O.R.E.). By the end of April they had increased in numbers and during May and June there must have been thousands on the island. Mr. E. A. Startin-Field (*in lit.*, Norfolk Island, 30th May, 1972) wrote "... the only commonly seen species now is the caper white which is in such numbers that six in sight at one time is quite usual". The following observations have been made (by O.R.E.). The adults fed at many flowers but especially from red poinsettias. The numbers dropped with the advent of strong winds and heavy rain at the end of June but a few specimens were present until August. Adults were seen again on 26th November, several specimens being active near one vine of *Capparis nobilis*; other vines in the area were not attended. This behaviour is very reminiscent of that of *A. java teutonia* (Fabricius) in Australia where females attract fluttering groups of males to the food plants even as they emerge from the pupae. The young leaves of the vine were seen eaten and caterpillars from 4.7 mm. to 28.5 mm. were present.

A batch of over two hundred eggs was collected in the field on 29th November, 1972; these hatched on 2nd December. The first larva pupated on 19th December (17 days after hatching) and the last on 25th December (23 days after hatching). The first sixteen adults emerged on 29th December. These comprised the larva which pupated on the 19th December (pupal period 10 days), five which pupated on 20th December (pupal period 9 days) and five which pupated on 21st December (pupal period 8 days).

The last adult emerged on 5th January, 1973 (date of pupation not separately recorded but would be 25th December at latest) (pupal period at least 11 days). In all, 156 butterflies emerged (79♂, 77♀) on the following dates:

|             |       |     |       |       |
|-------------|-------|-----|-------|-------|
| 29.xii.1972 | ..... | 1♂  | 15♀   | 16    |
| 30.xii.1972 | ..... | 36♂ | 25♀   | 61    |
| 31.xii.1972 | ..... | 32♂ | 32♀   | 64    |
| 1. i.1973   | ..... | 6♂  | 3♀    | 9     |
| 2. i.1973   | ..... | 1♂  | 2♀    | 3     |
| 3. i.1973   | ..... | —   | —     | —     |
| 4. i.1973   | ..... | 2♂  | —     | 2     |
| 5. i.1973   | ..... | 1♂  | —     | 1     |
|             |       | 79♂ | + 77♀ | = 156 |

There was a very strong tendency for females to emerge earlier in the day than males.

The pattern of abundance from April 1972 and into 1973 suggests a strong initial invasion followed by a decline at the onset of inclement weather at the end of June; a breeding population had, nevertheless, been established and the species remains a re-established, breeding resident on the island at present (12.iii.1974).

The most likely source area for the immigrant specimens is New Caledonia. *A. j. peristhene* is clearly a strong migrant at times (as is

*A. j. teutonia* (Fab.) in Australia) and a Lord Howe Island record of Hawkins (1943) is probably the result of a strong migration but one which, in the absence of larval food plants on Lord Howe, could not result in establishment of the species there. *A. j. teutonia* has been recorded from Lord Howe Island in similar circumstances (Smithers, 1970). It is hoped to continue observations on Norfolk Island to see how long the re-establishment lasts.

Norfolk Island material referred to in this paper is housed as follows: 2♂, Lathy/Godman Salvin Coll. 1896-12; 1♂, Moore Coll. 1907-190; 1♀, Crowley Bequest, 1901-78; 1♂, ex Distant Coll. Rothschild Bequest 1939-1. (The above specimens are in the British Museum. Years given do not refer to dates of collection but to accession to the British Museum (Natural History) collections). 11♂, 1♀ collected at various times during 1971 (by O.R.E.) (in the Australian Museum); 46♂, 36♀, bred from larvae on *Capparis nobilis* emerged on 30.xii.-31.xii.1972 (reared O.R.E.). (2♂, 2♀ in British Museum, 2♂, 2♀ in Australian National Insect Collection, remainder in the Australian Museum).

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We would like to thank Mr. R. I. Vane-Wright for examining specimens in the British Museum (Natural History) on our behalf, and for commenting on this note in draft form and Mr. E. A. Startin-Field for his letter referring to *A. j. peristhene* on Norfolk Island.

### References

- Hawkins, C. N., 1943. The insects of Norfolk Island, including a preliminary report on a recent collection. *Ann. Mag. nat. Hist. Lond.* (11)9(60): 865-902.  
 Olliff, A. S., 1888. Report on a small zoological collection from Norfolk Island. Part IV. Insecta. *Proc. Linn. Soc. N.S.W.* (2)2(4): 1001-1014.  
 Smithers, C. N., 1970. Observations on Lord Howe Island butterflies. *Aust. Zool.* 15(3): 377-379.

### BOOK REVIEW

TRICHOPTERA by H. Malicky in the *Handbuch der Zoologie* 4. Band, 2. Hälfte, 2. Teil, 29. Beitrag: 114 pages, 96 line drawings. Walter de Gruyter, Berlin and New York. Sept., 1973. Text in German. Price DM 130.00 (\$37.00 approx.).

This work is a text book where each individual part of the volume deals with a separate insect order. The large format pages (22 x 30 cm) are printed in double columns, headings and subheadings are clear and easily readable. The detailed index at the beginning of the volume is printed on yellowish paper thus allowing easy separation when parts are bound in one volume.

The present part written by Dr. Hans Malicky of the Biological Station Lunz, Austria, summarizes all aspects of research in the order Trichoptera. This is the first time for many years that a publication of this kind has become available in a single volume. The opening chapter deals